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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,918	08/02/2001	Allison H. Sampson	P66732US0	3989
136	7590	07/13/2005	EXAMINER	
JACOBSON HOLMAN PLLC 400 SEVENTH STREET N.W. SUITE 600 WASHINGTON, DC 20004			NGUYEN, NGOC YEN M	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/919,918

Applicant(s)

SAMPSON ET AL.

Examiner

Ngoc-Yen M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-12 and 16-51 is/are pending in the application.
- 4a) Of the above claim(s) 28-43 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-12, 16-27, 44-46, 48 and 50 is/are allowed.
- 6) ☒ Claim(s) 2-5, 47, 49, 51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

ll.

### DETAILED ACTION

Upon carefully review of the claims, claims 42 and 43 are drawn to a method for producing chlorine dioxide and they do not require the presence of chlorous acid in the final product, thus, these claims do not belong in Group I. A revision in the restriction is now made:

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 2-12, 16-27, 44-51, drawn to a process for producing chlorous acid, classified in class 423, subclass 472+.
- II. Claims 28-29, 38-39, drawn to a process for purifying chlorous acid, classified in class 210, subclass 679+.
- III. Claims 30-31, 40-41, drawn to a process for purifying chlorine dioxide, classified in class 423, subclass 477+.
- IV. Claims 32-34, drawn to a process for substituting desirable ions for undesirable ions in a chlorous acid, classified in class 423, subclass 266+.
- V. Claims 35-37, drawn to substituting desirable ions for undesirable ions in a chlorine dioxide solution, classified in class 423, subclass 266+.
- VI. Claims 42-43, drawn to a method for producing chlorine dioxide, classified claim 423, subclass 477+.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II and III and IV, V and VI are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different functions and different effect, while Invention I is for producing chlorous acid, the Invention II is for purifying chlorous acid, the Invention III is for purifying chlorine dioxide, Invention IV is for substituting ions in chlorous acid, Invention V is for substituting ions in chlorine dioxide solution and Invention VI is for producing chlorine dioxide.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 28-43 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

The amendment filed August 8, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added

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material which is not supported by the original disclosure is as follows: "Those skilled in the art..., such as in an electrolytic reactor".

Applicant is required to cancel the new matter in the reply to this Office Action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-5, 47, 49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants are requested to point out support in the instant application, as originally filed, by page and line numbers, for the limitation of "in the absence of an anion exchange material" as required in the instant claims 2, 4; for the limitation "has a pH in the range of about 1.9 to about 2.9" as required in the instant claim 47; for the limitation of "said cation exchange material is selected from the group consisting of ... or any combination of the foregoing" as required in the instant claim 49. It is noted that on page 13, lines 3-12, ion exchange materials, which can be membranes, powders, etc. and can be weak acid, strong acid, strong base or weak base ion exchange material,

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are disclosed, however these materials are for removing unwanted ions from the precursor, not for the cation for contacting with chlorite salt precursor.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 51 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "essentially pure" in claim 51 is a relative term which renders the claim indefinite. The term "essentially pure" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In the specification, there is no disclosure for the purity of the chlorous acid formed by the claimed method.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 2-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Callerame (3,684,437).

Callerame '437 discloses a process for producing chlorous acid by ion exchange between a mixed cation-anion exchange resin and a aqueous chlorite solution (i.e., moist environment) of an alkali metal or an alkaline earth metal (note claim 1).

The cation exchange resin has its active sites occupied by hydrogen (note column 2, lines 1-7).

In Example 9, only cation exchange resin was used to contact with a sodium chlorite solution. Chlorous acid is formed (note the  $\text{ClO}_2^-$  amount).

Since the additive as required in the instant claim 3 can be a cation exchange material (both strong and weak acid), the cation exchange resin in Callerame '437 is considered as both the required cation exchange material and the required additive.

The process of Callerame '437 anticipates the claimed process.

Claims 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Callerame (3,828,097).

Callerame '097 discloses a process of preparing chlorous acid by flowing an aqueous solution (i.e., "moist" environment) of a metal chlorate and a nitrite through a cation exchange resin, the active sites of which are occupied by hydrogen (note claim 1).

The nitrite is considered as the claimed "additive".

The process or Callerame '097 anticipates the claimed process.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3, 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Callerame '437.

Callerame '437 teaches that in the absence of the anion exchange resin, a poor yield is obtained and the resulting chlorous acid solution is not pure and rapidly deteriorates (note column 2, lines 13-16).

Thus, it would have been obvious to one of ordinary skill in the art to eliminate the use of the anion exchange resin along with its attended function. In re Wilson 153 USPQ 740 (CCPA 1967).

Since the process of Callerame '437 has all the positive limitations as in the claimed process, the chlorous acid product of Callerame '437 would inherently be as "essentially pure" as the product of claimed process.

Claims 6-12, 16-27, 44-46, 48, 50 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest a process for producing chlorous acid by contacting a chlorate with an anion exchange material or a process for producing



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chlorous acid and chlorine dioxide together by using a chlorate or a chlorite and a cation or an anion exchange material.

Applicant's arguments filed April 8, 2005 have been fully considered but they are not persuasive.

Applicants argue that Callerame '437 incorrectly states that chlorine dioxide absorbed in water forms chlorous acid.

Regardless of how the chlorous acid was formed, Callerame '437 still fairly discloses that chlorous acid is produced.

Applicants argue that Callerame '437 requires sodium chlorite must be passed through both cation and anion resin.

As stated in the 102 rejection above, Callerame '437 discloses in Example 9 a process for producing chlorous acid using only cation exchange resin. Moreover, as stated in the 103 rejection, Callerame '437 teaches that the anion exchange resin is used to increase yield and to purify, thus, it would have been obvious to delete the use of the anion exchange resin in the process of Callerame '437 along with its functions.

Applicants argue that Applicants' invention will not work if both cation and anion exchange resins were used together.

In Applicants' claims, the cation resin as required in Applicants' claim 10 can be used in combination with an additive, and as disclosed in Applicants' specification, ion exchange material can be used to remove unwanted ions from the precursor and the such ion exchange material can be weak base or strong base ion exchange material.

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Thus, Applicants' specification clearly teaches that the claimed process can be carried in the presence of both the cation and the anion exchange materials, which contradicts with Applicants' argument above.

Applicants argue that the pH in Callerame '437 is high.

No pH requirement in Applicants' claims, which were rejected over Callerame '437.

Applicants argue that Callerame '097 requires a reducing agent.

Such reducing agent is not excluded by Applicants' claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

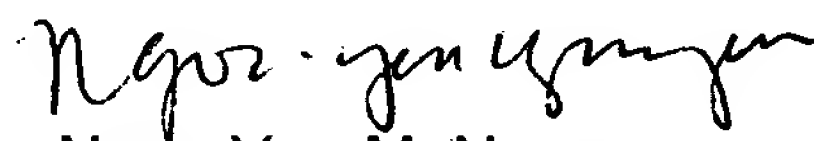
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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stan Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.

  
Ngoc-Yen M. Nguyen  
Primary Examiner  
Art Unit 1754

nmn  
July 8, 2005